

Page 4  
Serial No. 10/780,414  
Response to Official Action

### **In the Claims**

Please amend the claims as detailed in the following listing of claims, which will replace all prior versions, and listings, of claims in the application:

1. (currently amended) An apparatus for positioning back-up pins on a support plate for supporting a circuit board thereon, the apparatus comprising:
  - a back-up pin plate having a substantially planar upper surface for positioning back-up pins thereon;
  - a back-up pin stand for placing back-up pins therein;
  - a camera for taking surface images of the circuit board to be supported by a plurality of back-up pins;
  - a control unit having a display unit connected for displaying the surface images of the circuit board taken by the camera, the surface images including a first image representative of a portion of the surface of the circuit board and a second image representative of substantially the entire surface of the circuit board, the control unit including a user interface for allowing a user to allocate a plurality of support locations for supporting the circuit board with the back-up pins at locations not interfering with parts disposed on the circuit board while viewing the first image and the second image of the circuit board displayed on the display unit; and
  - a transfer member coupled with the control unit for transferring a plurality of back-up pins from the back-up pin stand to the allocated support locations on the back-up pin plate.
2. (original) The apparatus of claim 1, wherein at least a portion of the back-up pin plate includes a magnetizable material, and each of the back-up pins includes a

Page 5  
Serial No. 10/780,414  
Response to Official Action

magnetic portion for attaching onto the back-up pin plate by a magnetic force between the back-up pin plate and the back-up pin.

3. (original) The apparatus of claim 1, wherein the camera is a line charge-coupled device camera.

4. (original) The apparatus of claim 1, wherein the first image is a real-time image taken by the camera and the second image is an image composed of a plurality of the real-time images taken by the camera.

5. (canceled)

6. (canceled)

7. (currently amended) The apparatus of ~~claim 6~~ claim 1, wherein the control unit further includes an input device for the allocation of the support locations.

8. (previously presented) The apparatus of claim 7, wherein the input device of the control unit is a mouse configured to move a mouse pointer in the display unit for displaying the image of the circuit board and select the support locations while viewing the image of the circuit board displayed on the display unit.

9. (currently amended) The apparatus of ~~claim 6~~ claim 1, wherein the user interface comprises a back-up pin type selection menu.

10. (currently amended) The apparatus of ~~claim 6~~ claim 1, wherein the user interface comprises an insert mode for the allocation of the support locations.

Page 6

Serial No. 10/780,414

Response to Official Action

11. (original) The apparatus of claim 10, wherein the user interface further comprises a remove mode for cancellation of the previously allocated support locations.

12. (original) The apparatus of claim 10, wherein the user interface comprises a save mode for saving the allocation information in the control unit.

13. (currently amended) The apparatus of ~~claim 6~~ claim 1, wherein the user interface comprises a PCB loading mode for loading a circuit board onto the apparatus.

14. (original) The apparatus of claim 1, wherein the back-up pin stand comprises a plurality of openings for receiving lower portions of the back-up pins.

15. (original) The apparatus of claim 1, wherein the camera is coupled with the transfer member for moving together along a Cartesian coordinate.

16 – 35. (canceled)

36. (new) The apparatus of claim 1, wherein the plurality of back-up pins have a generally cylindrical shape with the upper portions of the back-up pins having different diameters.

37. (new) The apparatus of claim 36, wherein the diameters of the upper portions of the back-up pins include about 8 mm and about 2 mm diameters.

38. (new) The apparatus of claim 1, wherein the display unit displays the first image at one side of the display unit and the second image on another side of the display unit

Page 7

Serial No. 10/780,414

Response to Official Action

for allowing the user to view the first image and the second image simultaneously for facilitating the allocation of support locations.

39. (new) The apparatus of claim 38, wherein the control unit further includes an input device for the allocation of the support locations, the input device including a mouse which allows the user to move a mouse pointer to a position on the second image of the circuit board displayed on the display unit for subsequently selecting the support locations by clicking the mouse.

40. (new) The apparatus of claim 39, wherein, as the mouse pointer is moved on the second image of the circuit board, the display unit is adapted to display the first image of the circuit board representative of the corresponding portion of the circuit board where the mouse pointer is located.